GR 800 D2 64 L5 4G

- GR — GOODRAM
- 800 — SPEED / DATA TRANSFER 800MHz / PC2-6400
- D2 — MODULE TYPE DDR2 SDRAM DIMM
- 64 — MODULE DATA WIDTH 64
- L5 — CAS LATENCY 5
- 4G — MODULE DENSITY 4GB

DDR II MODULE PART NUMBERING SYSTEM

GOOD RAM
professional memory for everyone

FEATURES

PART NUMBER	GR800D264L5/4G
MODULE TYPE	DDR2 SDRAM DIMM
MODULE DENSITY	4GB
MODULE DATA WIDTH	64
DRAM CHIP ORAGNIZATION	256Mx8
NUMBER OF DRAM CHIPS	16
NUMBER OF MODULE RANKS	2
NUMBER OF MODULE SIDES	2
REGISTERED	NO
ECC SUPPORT	NO
PIN COUNT	240 PIN
SUPPLY VOLTAGE	1,8V
SSTL_18 COMPATIBLE	YES
PROGRAMMED SPD MEMORY	128 BYTES
MAX AVG PERIODIC REFRESH INTERVAL	7,8 µs

OPERATING FREQUENCY — CAS Latency

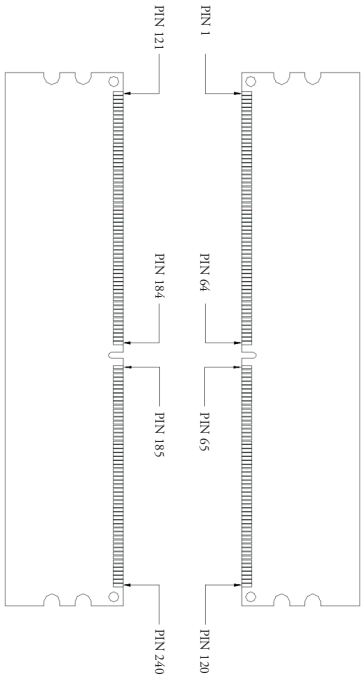
800MHz (2x400MHz) | PC2-6400	6
800MHz (2x400MHz) | PC2-6400	5
533MHz (2x266MHz) | PC2-4200	4

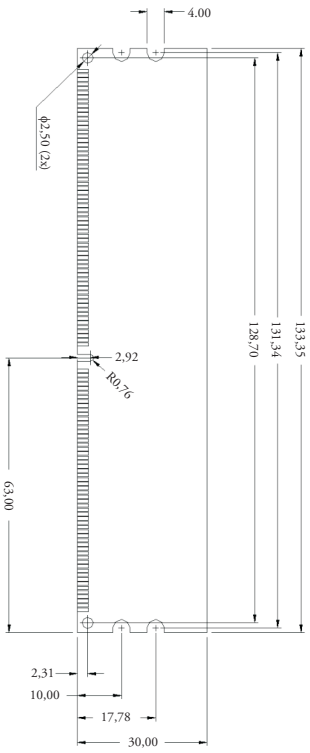
DYNAMIC PARAMETERS FOR 800MHz

RAS# TO CAS# DELAY, tRCD	12.5 ns
ROW PRECHARGE TIME, tRP	12.5 ns
ROW ACTIVE TO ROW ACTIVE DELAY, tRRD	7.5 ns
ACTIVE TO PRECHARGE TIME, tRAS	45 ns
ACTIVE TO ACTIVE / AUTO REFRESH TIME, tRC	57 ns
AUTO REFRESH TO ACTIVE / AUTO REFRESH, tRFC	195 ns
DEVICE CYCLE TIME, tCK MAX	8

PCB DETAILS

PCB TYPE	DDR2 SDRAM DIMM
BOARD DIMENSIONS	133,35 x 30mm ± 0,1mm
BOARD THICKNESS	1,27mm ± 0,13mm
DRAM PACKAGE INFORMATION	FBGA, x8bit
CONTACT PADS (PIN)	GOLD PLATED





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SPD CONFIGURATION

BYTE	DESCRIPTION	HEX	DEC
0	Number of Serial PD Bytes written during module production	0x80	128
1	Total number of Bytes in Serial PD device	0x08	8
2	Fundamental Memory Type (FPM, EDO, SDRAM ...)	0x08	8
3	Number of Row Addresses on this assembly	0x0F	15
4	Number of Column Addresses on this assembly	0x0A	10
5	Number of DIMM Banks	0x61	97
6	Data Width of this assembly	0x40	64
7	Data Width of this assembly	0x00	0
8	Voltage Interface Level of this assembly	0x05	5
9	SDRAM Cycle time at Maximum Supported CAS Latency (CL), CL=X	0x25	37
10	SDRAM Access from Clock	0x40	64
11	DIMM configuration type (Non-parity, Parity or ECC)	0x00	0
12	Refresh Rate/Type	0x82	130
13	Primary SDRAM Width	0x08	8
14	Error Checking SDRAM Width	0x00	0
15	SDRAM Device Attributes: Minimum Clock Delay, Back-to-Back RCA	0x00	0
16	SDRAM Device Attributes: Burst Lengths Supported	0x0C	12
17	SDRAM Device Attributes: Number of Banks on SDRAM Device	0x08	8
18	SDRAM Device Attributes: CAS Latency	0x70	112
19	SDRAM Device Attributes: CS Latency	0x01	1
20	SDRAM Device Attributes: Write Latency/DIMM Type Information	0x02	2
21	SDRAM Module Attributes	0x00	0
22	SDRAM Device Attributes: General	0x07	7
23	Minimum Clock Cycle at CL = X - 0.5	0x25	37
24	Maximum Data Access Time (tAC) from Clock at CL = X - 0.5	0x40	64
25	Minimum Clock Cycle at CL = X - 1	0x3D	61
26	Maximum Data Access Time (tAC) from Clock at CL = X - 1	0x50	80
27	Minimum Row Precharge Time (tRP)	0x32	50
28	Minimum Row Active to Row Active delay (tRRD)	0x1E	30
29	Minimum RAS to CAS delay (tRCD)	0x32	50
30	Minimum Active to Precharge Time (tRAS)	0x2D	45
31	Module Bank Density	0x02	2
32	Address and Command Input Setup Time Before Clock	0x17	23
33	Address and Command Input Hold Time After Clock	0x25	37
34	Data Input Setup Time Before Clock	0x05	5
35	Data Input Hold Time After Clock	0x12	18
36	Write recovery time (tWR)	0x3C	60
37	Internal write to read command delay (tWTR)	0x1E	30
38	Internal read to precharge command delay (tRTP)	0x1E	30
39	Memory Analysis Probe Characteristics	0x00	0
40	Extension of Byte 41 tRC and Byte 42 tRFC	0x30	48
41	SDRAM Device Minimum Active to Active/Auto Refresh Time (tRC)	0x39	57
42	SDRAM Device Minimum Auto Refresh to Active/Auto Refresh (tRFC)	0xC3	195
43	SDRAM Device Maximum device cycle time (tCKmax)	0x80	128
44	SDRAM Device Maximum skew between DQS and DQ signals (tDQSQ)	0x14	20
45	DDR SDRAM Device Maximum Read Data Hold Skew Factor (tQHS)	0x1E	30
46	Reserved for future use	0x0F	15
47	SDRAM Device Attributes - DDR SDRAM DIMM Height	0x50	80
48	Reserved for future use	0x60	96
49	Reserved for future use	0x5F	95
50	Reserved for future use	0x44	68
51	Reserved for future use	0x43	67
52	Reserved for future use	0x31	49
53	Reserved for future use	0x49	73
54	Reserved for future use	0x2F	47
55	Reserved for future use	0x72	114
56	Reserved for future use	0x3A	58
57	Reserved for future use	0x43	67
58	Reserved for future use	0x00	0
59	Reserved for future use	0x00	0
60	Reserved for future use	0x00	0
61	Reserved for future use	0x00	0
62	SPD Revision	0x11	17
63	Checksum for Bytes 0-62	0x66	102
64-255	Manufacturer's specific data		

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